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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,325	01/14/2002	Thomas R. Hooton	TI-33566	7116
23494	7590	04/07/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			AGHDAM, FRESHTEH N	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,325

Applicant(s)

HOOTON, THOMAS R.

Examiner

Freshteh N. Aghdam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 and 16-32 is/are allowed.
- 6) ☒ Claim(s) 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments see pages 9-10, filed 2/1/2006, with respect to independent claims 1, 8, 16, 20, and 23 have been fully considered and are persuasive. The rejections of the claims 1-8 and 16-32 have been withdrawn.

Applicant's Argument(s): Regarding the independent claim 9, on page 11, applicant requested a teaching from the prior art, which shows the examiner's official notice regarding "an inverse transform operative to perform an inverse transform on the composite signal to generate a digital chirp signal".

Examiner's Response: Regarding the independent claim 9, examiner has provided a teaching from the prior art below:

Jalali et al (US 7,012,883) see figure 1A; Ho (US 5,495,432) see column 1, lines 7-15; column 4, lines 1-10; and Dunn (US 6,963,599) see figure 1, means 10 and 21.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi, and further in view of Becker (US 6,218,896).

As to claim 9, Shi teaches a chirp rate determiner operative to receive input data having at least one input signal to determine a chirp rate for the at least one input signal and to generate a composite signal for the at least one input signal (Par. 20-22 and 59-62). Shi is silent about an inverse transform operative to perform an inverse transform on the composite signal to generate a digital chirp signal. Becker teaches using a chirp Z transform in the receiver (Fig. 3, means 326). One of ordinary skill in the art would clearly recognize that the inverse function is performed in the transmitter. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Becker with Shi in order to move data into the time domain (mapping) or map data symbols to orthogonal chirped-time waveforms.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shi and Becker, further in view of Razavilar.

As to claims 10 and 11, Shi and Becker teach all the subject matters claimed above, except for the chip rate determiner further operative to receive feedback data from a receiving station, the feedback data indicating transmission errors and bandwidth

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usage. Razavilar teaches employing a feedback channel in order to dynamically modifying the data rate according to the transmission errors and bandwidth usage (Fig. 6, Par. 60). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Razavilar with Shi and Becker in order to dynamically (adaptively) control the data rate and power in a communication system to enhance data transmission.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi and Becker, further in view of Cangiani et al (US 6,741,633).

As to claim 12, Shi and Becker teach all the subject matters claimed above, except for the chirp rate determiner employing simulation to determine the chirp rate. Cangiani teaches simulating a chirp code at different specific frequency (i.e. rate) using simulation (Col. 5, Lines 11-20). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Cangiani with Shi and Becker in order to use simulation method to compare different results and/ or calculate, compute, and extract result for an experiment.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi and Becker.

As to claim 13, Shi teaches the system further comprising a rate assignment component operative to assign one chirp rate, corresponding to at least one assigned channel and to provide the chirp rate corresponding to the assigned channel (bandwidth) for each of the at least one input signal (Par. 20-22, 59). Shi is silent about storing the at least one assigned chirp rate. One of ordinary skill in the art would clearly

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recognize that it is well known in the art to store data in a type of memory for further processing.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi and Becker, further in view of Dong (US 5,297,186).

As to claim 14, Shi and Becker teach all the subject matters claimed above, except for the chirp rate further being operative to determine a baud time and carrier frequency. Dong teaches a baud rate/ carrier decision selection unit (Fig. 1, means 110) that selects the optimal baud rate and carrier (Fig. 1; Col. 3, Lines 1-25). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Dong with Shi and Becker in order to improve data transmission by selecting the optimal baud rate and/ or carrier.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shi and Becker, further in view of Dong and Kerbs et al (US 2003/0054816).

As to claim 15, Shi, Becker, and Dong teach all the subject matters claimed above, see rejection of claim 14, except for the selection of chirp rates, carrier frequencies, baud times, modulations, and bandwidth being performed by employing a list of available chirp rates, carrier frequencies, baud times, modulations, and bandwidth. Kerbs teaches employing a table containing a list of modulation types, symbol rates (baud), and channel estimation information (Par. 73, table 1). One of ordinary skill in the art would clearly recognize that the table could include available carrier frequencies and bandwidth as it is well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Kerbs with

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Shi, Becker, and Dong in order to enhance data transmission by selecting the optimal data rate, carrier frequency, baud time, modulation, and bandwidth.

Allowable Subject Matter

Claims 1-8 and 16-32 are allowed. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach that the transmitted chirp signal being substantially orthogonal to delayed versions of the transmitted chirp signal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schuchman et al (US 6,111,538); Stann (US 2002/0048012); Tanaka (US 6,498,822); Pinkney et al (6,940,893); Arnstein (US 6,047,023); Matsui (US 6,049,563); and Otto (US 6,600,774).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

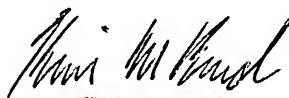
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam
March 30, 2006


KEVIN BURD
PRIMARY EXAMINER